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- d. a heating element adapted to maintain the nozzle needle at a high temperature,
- e. a cooling system adapted to maintain at least a portion of the inner surface of the channel at a temperature below that of the nozzle needle, and
- f. carrying means adapted to move the nozzle needle to open and close the nozzle opening.

2. Apparatus as recited in claim 1, wherein the nozzle needle has an elongated central bore.

3. Apparatus as recited in claim 2, wherein the heating element is contained in the bore.

4. Apparatus as recited in claim 1, wherein the needle is adapted to extend a substantial distance through the nozzle opening toward the mold.

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5. Apparatus as recited in claim 1, wherein a distributing portion of the channel between the nozzle and the mold is cooled.

6. Apparatus as recited in claim 5, wherein thermal insulating plates are provided at those points on the distributing portion which points are adjacent the mold when the apparatus is operating.

7. Apparatus as recited in claim 5, wherein the distributing portion is provided with cooling passages through which fluid will flow.

8. Apparatus as recited in claim 1, wherein the end of the needle closest to the mold forms a portion of the mold wall when the nozzle is closed.

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